

## PATENT ABSTRACTS OF JAPAN

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(21)Application number : 10-339879

(71)Applicant : JAPAN PMC CORP

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OGAWA MASATOMI

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## (54) ADDITIVE FOR PAPER MAKING

## (57)Abstract:

PROBLEM TO BE SOLVED: To obtain an additive for paper making having excellent drainage effect by copolymerizing an acrylamide with an anionic and a cationic vinyl monomers and N,N'-bis[(meth)acrylamidoalkylene]urea.

SOLUTION: This additive for paper making comprises 10-30 wt.% solid content concentration of a copolymer obtained by copolymerizing 97.995-55 mol% of an acrylamide such as (meth)acrylamide with 1-20 mol% of an anionic vinyl monomer selected from itaconic acid, acrylic acid or its salt, 1-20 wt.% of a cationic monomer such as 2-hydroxy-N,N,N,N',N'-pentamethyl-N'-[3 [1- oxo-2-propenyl)amino]propyl]-1,3-propenediaminium chloride and 0.005-5 wt.% of N,N'-bis [(meth)acrylamidoalkylene]urea.

## LEGAL STATUS

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CLAIMS

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[Claim(s)]

[Claim 1] (a) The additive for paper manufacture characterized by containing the copolymer obtained by carrying out the polymerization of the acrylamide, (b) anionic vinyl monomer, (c) cationic vinyl monomer and (d) N, and N'-screw (meta) (acrylamide alkylene) ureas.

[Claim 2] Said additive for paper manufacture according to claim 1 characterized by said copolymer being a copolymer which comes to carry out the polymerization of the (d) N and N'-screw (meta) (acrylamide alkylene) ureas 0.005 - five-mol % (c) cationic vinyl monomer 1 - 20-mol% (b) anionic vinyl monomer 1 - 20-mol% (a) acrylamide 97.995 - 55-mol%.

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TECHNICAL FIELD

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[Field of the Invention] This invention relates to the additive for paper manufacture which is excellent in the filterability effectiveness in more detail about the additive for paper manufacture.

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PRIOR ART

[Description of the Prior Art] It set like the paper maker conventionally and use of a virgin pulp was restricted with aggravation of a bolt supply situation, Furthermore, closed \*\*\*\* of Hokusui increases by that the need for reuse of used paper became strong further for the purpose of energy saving or a deployment of a resource, wastewater regulation, etc., and the various additives for paper manufacture are used for that the amount of the impurity contained all over Hokusui increased, and the improvement in the productivity accompanying improvement in the speed of a paper machine or upgrading of paper.

[0003] Although the acrylamide system polymer which uses starch, polyamide polyamine-epichlorohydrin resin, melamine formaldehyde resin, formaldehyde resin, and acrylamide as a principal component as a paper durability agent and a filtration improvement agent among the additives for paper manufacture is used according to the purpose, generally the acrylamide system polymer is most widely used especially from the ease of dealing with it on the advantage on the composition, the engine performance, and use.

[0004] As an additive for paper manufacture which consists of an acrylamide system polymer, the anion type, the cation type, and the both-sexes type are known by the ionicity.

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EFFECT OF THE INVENTION

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[Effect of the Invention] The additive for paper manufacture of this invention can give the outstanding filterability and the outstanding filterability effectiveness, maintaining paper durability equivalent to them as compared with a conventionally well-known polymer, as shown in Tables 2-6.

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TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] This invention makes it a technical problem to offer the new additive for paper manufacture which can give the filterability and yield nature which were excellent while maintaining the paper durability which is not inferior to them compared with additives for paper manufacture which are known from the former, and which gave branching structure using the additives for paper manufacture and well-known polyfunctional vinyl monomers, such as a polyacrylamide system polymer with low molecular weight, relatively, such as an acrylamide system polymer of the amount of macromolecules.

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MEANS

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[Means for Solving the Problem] In order that this invention person may solve the above-mentioned technical problem, as a result of repeating research wholeheartedly, it differs from additives for paper manufacture, such as an acrylamide system polymer which carried out macromolecule quantification using the well-known polyfunctional vinyl monomer. New specific N and the N'-screw (meta) (acrylamide alkylene) urea which lengthened distance between polymerization nature double bonds, using a urea as a SU \*\*-sir A header, It succeeded in giving the filterability and yield nature which were excellent while maintaining paper durability equivalent to them compared with the conventional additive for paper manufacture by using this N and an N'-screw (meta) (acrylamide alkylene) urea for the additive for paper manufacture.